Jones & Henry
ENGINEERS, LTD.

City of Bellevue, Ohio
WWTP Solids and Grit Removal Improvements

ADDENDUM 3

November 28, 2022

Planholders on the City of Bellevue, Ohio, WWTP Solids and Grit Removal Improvements are hereby notified of the following amendments to the Contract Documents. This Addendum is hereby made a part of the Contract Documents.

QUESTIONS AND ANSWERS

1. *The Drawings call for hollow metal door frames with fiberglass doors? The Spec calls out for heavy-duty aluminum for both doors and frames. Please advise.*

   a. Updated Drawing attached to this Addendum.

2. *Per detail A on Drawing S-3.3, we are to install a "suspended grade beam" in between the Grit Room and the Pump Room that supports the S10 x 35 monorail that spans the Pump Room. Can you please advise what the "suspended grade beam" is to bear on? Can you please provide a construction detail on how the "suspended grade beam" is to be supported on each end? See attached mark-up of Drawing S-3.3 that shows the area in question.*

   a. Plan and details are shown on Sheet Nos. S-3.1 through S-3.4.

3. *R-1.1 tells us to remove the jambs and head of an overhead door to increase the size. How will the new jambs and head be constructed.*

   a. Door schedule and details are shown on Sheet Nos. A-0.1 and A-0.2.

4. *The new grit building is to have colored splitfaced AMU and splitfaced APMU. The Specs call for manufacturer's full range of standard colors. Could you clarify a range of colors, as these can drastically increase the cost?*

   a. Colors to be chosen by Owner during construction.

5. *Paragraph 04200, 2.01 G. calls for glazed concrete masonry. Could you clarify where this is located?*

   a. Updated specification attached to this Addendum.

6. I would like to request electronic copies of the documents called out in the Supplementary Conditions SC-5.03 C. and D.*?*

   a. Documents referred to can be found on the JH Plan Room website for download.

SPECIFICATIONS

Replace the following Specifications with the attached to this Addendum:

Section 04200 – Unit Masonry

Planholders should update the Table of Contents to reflect the above sections.

An updated Table of Contents will be included in the Issued for Construction Project Manual.

DRAWINGS

Replace the following Drawings with the attached to this Addendum:

Sheet No. A-0.1, 21 of 76

Planholders should update the Drawing Index to reflect the above changes.

An updated Drawing Index will be included in the Issued for Construction Project Manual.

RECEIPT OF THIS ADDENDUM MUST BE ACKNOWLEDGED ON PAGE C-410-1 OF THE BID.

SECTION 04200
UNIT MASONRY

PART 1 GENERAL

1.01 SCOPE

A. This Section includes furnishing, all labor, materials, equipment, and appliances required to complete the masonry work, including the following:

1. Furnishing and placing masonry units, grout, mortar, masonry lintels, sills, copings, through-wall flashing, and connectors.
2. Furnishing and setting of the steel reinforcement as indicated on the Drawings and as herein specified or necessary.
3. Furnishing, erecting, and maintaining bracing, forming, scaffolding, rigging, and shoring.
4. Furnishing and installing other equipment for constructing masonry.
5. Cleaning masonry and removing surplus material and waste.
6. Installing steel lintels, nailing blocks, all bolts, anchors, inserts, window and door frames, connectors, and construction items to be built into the masonry, and building in vent pipes, conduits, and other items furnished and located by other trades.
7. The removal and repair of sections of the masonry for inspection as directed by the Engineer.

B. Products Furnished but not Installed in this Section:

1. Dovetail anchor slots shall be installed under Section 03100.

C. Products installed but not furnished under this Section include the following:

1. Steel lintels for unit masonry specified in Section 05500.
2. Frames for masonry openings specified in Division 8.

D. Laboratory services shall be furnished in accordance with requirements of Section 01410.

1.02 SUBMITTALS

A. Submittals shall be in accordance with the requirements of Section 01300 and shall include:

1. Shop Drawings for Review:

a. Reinforcement placing drawings. The drawings shall show the location of reinforcement in plan, elevation, and section views, and include bending schedules.

b. Product literature for joint reinforcement, anchors and ties, premolded joint fillers, and accessory materials.

c. Mortar and grout mix proportions.

d. Manufacturer's color selection kit for each type of masonry and mortar.

e. Samples of each type of facing brick and architectural concrete masonry units showing range of colors, textures, finishes and dimensions.

f. Six-inch-long sample of each premolded joint material.

g. Product Certifications - Results of tests of mortar, grout mixes, and masonry units attesting compliance with applicable ASTM Standards.

h. Certification of compliance for each type and size of anchors, ties, metal accessories, and reinforcement to be used in construction, demonstrating compliance with applicable ASTM Standards.

i. Show locations of the wall expansion joints with the corresponding vertical reinforcement.

2. Information for the Record:

a. Manufacturer's installation instructions.

b. Results of tests on components of mortar, grout, and masonry units to provide evidence that they conform to applicable ASTM specification requirements.

c. Results of prism or unit strength tests for concrete and clay masonry.

1.03 QUALITY

A. Preconstruction Verifications - The Contractor shall submit the following information prior to the start of construction. The Contractor shall pay for independent laboratory services if required to obtain the following information. Current tests and certificates issued by the manufacturer will be accepted in lieu of laboratory test results.

1. Test indicating that clay masonry units conform to ASTM C62, ASTM C216 or ASTM C652 and that concrete masonry units conform to ASTM C55 or ASTM C90. Manufacturer's certificates stating that the supplied units conform to these tests will be accepted.

2. Grout mix designs indicating type and proportions of materials conforming to the proportion specification of ASTM C476, Table 1. Grout mix component material certificates stating conformance with applicable materials listed in ASTM C476.

3. Mortar mix designs indicating type and proportions of materials conforming to the proportion specification of ASTM C270, Table 1. Mortar mix component material certificates stating conformance with allowable materials listed the Mortar specification section herein.

B. Sample Panel:

1. Mock-up panels of each type of masonry wall using proposed materials and procedures shall be constructed. Minimum panel size shall be 4 feet by 4 feet.

2. The accepted panels shall establish the acceptance standard for the Work.

3. Unless directed otherwise, panels shall be constructed separate from the Work and shall be retained at the job site until masonry work has been accepted.

C. Fire-Resistance Ratings - Provide materials and construction identical to those of assemblies with fire resistance ratings determined per ASTM E119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.

1. All concrete masonry unit walls shall have a minimum two-hour fire rating.

D. Single-Source Responsibility for Masonry Units - Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one source and by a single manufacturer for each different product required.

E. Single-Source Responsibility for Mortar Materials - Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.

F. Masonry construction and materials shall conform to all requirements of the following codes and standards:

1. “Building Code Requirements for Masonry Structures” (ACI 530/ASCE 5/TMS 402), American Concrete Institute, American Society of Civil Engineers, The Masonry Society.

2. “Details and Detailing of Concrete Reinforcement” (ACI 315), American Concrete Institute.

3. “Ohio Building Code”.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver masonry units to job site in undamaged condition. Deliver and handle units to prevent chipping, breaking, or other damage.

B. Store masonry units on elevated platforms, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, and other causes. If units become wet, do not install until they are in an air-dried condition.

C. Store cementitious materials on elevated platforms, under cover, and in a dry location.

D. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil. Protect from bending and other damage.

PART 2 PRODUCTS

2.01 MASONRY UNITS

A. Units shall be sized as shown or specified. Provide or cut special shapes for corners, jambs, lintels, or other areas as required. Special units shall match color and texture of standard units. Units shall be sound, dry, clean, free of cracks, and shall have reached the specified moisture content and compressive strength prior to placing in the structure.

B. Structural Glazed Facing Tile (SGFT) shall conform to ASTM C126, Grade SS (select sized), Type I (single faced), 6T or 8W series and shall be of load-bearing quality. Thickness shall be as shown. Color will be selected by Owner from manufacturer's standards. For exposed exterior applications, the tile body shall also meet the durability requirements per ASTM C652, Grade SW hollow brick units. Exterior applications shall be limited to vertical cell tiles, since horizontal cells can trap moisture in the wall. Tiles shall be supplied by The Thomas Brick Company, or approved equal.

C. Concrete Masonry Unit (CMU) shall conform to ASTM C90, Type I. Nominal dimensions of standard unit shall be 8-inch high by 16-inch long. Thickness shall be as shown. Unless otherwise specified, units shall be normal weight. When CMU units are used for exterior walls add the following:

1. Where required in Part 4, units shall be integrally colored with mineral oxide pigments. Color will be selected by Owner from manufacturer's standards.

D. Concrete Masonry Pre-Insulated Unit (CPMU) shall conform to ASTM C90, Type I, medium weight (115 pcf). Nominal dimensions of standard unit shall be 8-inch high by 16-inch long. Thickness shall be as shown. The units shall be type HI-R-H as defined by the Concrete Products Group, or equal.

1. Units shall be constructed to receive pre-shaped insulation board inserts specifically formed to fit into the front face of the block cell to provide continuous wall insulation on the exterior side of the block and continuous grouting on the back side of the block.

2. The block/insulation system shall have a minimum thermal R-value of 13.74.

3. Unit shall be standard faced type.

4. Where required in Part 4, units shall be integrally colored with mineral oxide pigments. Color will be selected by Owner from manufacturer's standards.

E. Architectural Concrete Masonry Unit (AMU) shall conform to ASTM C90, Type I, normal weight. Nominal dimensions of standard unit shall be 8-inch high by 16-inch long. Thickness shall be as shown.

1. Unit shall be split-faced type.

2. Where required in Part 4, units shall be integrally colored with mineral oxide pigments. Color will be selected by Owner from manufacturer's standards.

F. Architectural Concrete Masonry Pre-Insulated Unit (APMU) shall conform to ASTM C90, Type I, medium weight (115 pcf). Nominal dimensions of standard unit shall be 8-inch high by 16-inch long. Thickness shall be as shown. The units shall be type HI-R-H as defined by the Concrete Products Group, or equal.

1. Units shall be constructed to receive pre-shaped insulation board inserts specifically formed to fit into the front face of the block cell to provide continuous wall insulation on the exterior side of the block and continuous grouting on the back side of the block.

2. The block/insulation system shall have a minimum thermal R-value of 13.74.

3. Unit shall be split-faced type.

4. Where required in Part 4, units shall be integrally colored with mineral oxide pigments. Color will be selected by Owner from manufacturer's standards.

G. ~~Glazed Concrete Masonry Unit shall conform to ASTM C744 and ASTM C90, Type I, normal weight. Nominal dimensions of standard unit shall be 8-inch high by 16-inch long. Thickness shall be as shown. Color will be selected by Owner from manufacturer's standards. Glazing shall be "Spectra Glaze II" as licensed by The Burns & Russell Company, or equal~~. **(Addendum 3, issued November 28, 2022)**

2.02 WATER REPELLANT ADMIXTURE

A. APMU, AMU, CPMU and CMU Units shall contain integral polymer water repellant admixture. Admixture shall be W. R. Grace "Dry-Block Water Repellant Admixture", or equal. Admixture shall be used in accordance with manufacturer's instructions.

2.03 MORTAR

A. Mortar mix shall conform to ASTM C270, Type S, proportion specification. Required Applicable specifications for mortar material components are: Masonry Cement (ASTM C-91), Mortar Cement (ASTM C1329), portland cement (ASTM C150, Type I), hydrated lime (ASTM C207, Type S) and sand (ASTM C144).

B. Where mortar is required to be colored it shall be colored with mineral oxide pigments. Color shall be selected by Owner form manufacturer's standard colors.

C. Mortar for exterior masonry units shall contain integral polymer water repellant admixture. Admixture shall be W.R. Grace "Dry-Block Mortar Admixture", "Dry-Brick Mortar Admixture", or equal.

D. Calcium chloride and other admixtures containing chloride ion are prohibited.

E. Mortar shall be used as soon as possible after mixing. Mortar which has begun to stiffen or is not used within two hours after initial mixing shall be discarded. Mortar that cannot regain original plasticity after single retempering shall be discarded.

2.04 GROUT

A. Grout mix components and mixing procedures shall conform to ASTM C476. Admixtures shall not be used without written permission of Engineer.

B. Grout shall be proportioned in accordance with ASTM C476, Table 1. The grout shall be mixed to a slump of between 8 and 12 inches. Aggregate for grout shall conform to ASTM C404.

2.05 MASONRY STRENGTH

A. Net area compressive strength (f`m) of concrete and brick masonry at 28 days, in each wythe and grouted collar joint, shall be not less than 1,500 psi.

B. Net area compressive strength of clay masonry units shall not be less than 3,350 psi.

C. Net area compressive strength of concrete masonry units shall not be less than 1,900 psi.

2.06 BAR REINFORCEMENT

A. Reinforcement shall be grade 60 deformed bars conforming to ASTM A615.

B. Reinforcement to be welded shall be grade 60 and conform to ASTM A706.

C. Bars shall be fabricated in conformance with CRSI Manual of Standard Practice.

D. Reinforcement shall be cold bent, where bending is specifically shown, but shall not be bent or straightened in injurious manner.

2.07 JOINT REINFORCEMENT

A. Joint reinforcement shall be manufactured with wire conforming to ASTM A82, size number W1.7 (9 gauge) for both longitudinal and cross wires. Longitudinal wires shall be deformed in conformance with requirements of ACI 530.1/ASCE 6/TMS 602.

B. Joint reinforcement shall be fabricated in ladder configurations.

1. For non-cavity wall construction use ladder type reinforcement with two longitudinal wires weld-connected to perpendicular cross rods at 16-inch on center to form a ladder configuration. Hohmann & Barnard, Inc. 220 Ladder-Mesh, Wire-Bond Series 200 Ladder Mesh, or equal.

2. For cavity wall construction use ladder type reinforcement with two longitudinal wires weld-connected to perpendicular cross rods to form a ladder configuration and adjustable tie loop to snap to third wire. Two wires shall reinforce back-up wythe and third wire shall act as tie and reinforcement for veneer wythe. Cross wires shall be spaced at 16-inch centers. Hohmann & Barnard, Inc. 270-2X-SH Ladder, Hohmann & Barnard, Inc. 270-2X S.I.S. Ladder, or equal.

C. Corners and intersections shall be factory fabricated.

D. Joint reinforcement shall be hot dip galvanized in accordance with ASTM A153, Class B-1 or B-2.

E. Plate, header, and bent bar anchors shall conform to ASTM A36.

F. Sheet metal anchors and ties shall conform to ASTM A1008.

G. Wire ties and anchors shall conform to ASTM A82.

2.08 PREMOLDED JOINT MATERIAL

A. Expansion Joint Filler for Face Brick - Highly compressible extrusion of four connected rubber tubes. Material shall conform to ASTM D1056, Grade 2A1 or 2B1. Williams Products, Inc. “Everlastic 1056 Joint Filler”, Hohmann & Barnard “NS – Closed Cell Neoprene Sponge” or equal.

B. Shear Keys - Designated to provide lateral stability to masonry walls at expansion and control joints: Rubber conforming to ASTM D2000, 2AA-805 with minimum durometer hardness of 80, or PVC conforming to ASTM D2287, Type PVC 654-4 with minimum durometer hardness of 85. Hohmann & Barnard “RS Series – Rubber Control Joints” or equal.

C. Control Joint Compressible Filler for Concrete Masonry - Expanded neoprene conforming to ASTM D1056 Grade 2A1. Thickness shall be as shown. Williams Products, Inc. “Williams Neoprene Everlastic NN-1 1040 Series”, or equal.

D. Isolation Gasket - Expanded PVC conforming to ASTM D1056 Grade 2A1 and ASTM D1667, Grade VE41. Williams Products, Inc. “Everlastic Vinyl Type U 1000 Series”, or equal.

2.09 ANCHORS AND TIES

A. Weld on Ties - Anchor shall be 1/4-inch wire or 14 gauge sheet metal designed to weld to steel frame, with adjustable 3/16 wire tie. Anchor shall be mill galvanized and tie shall be hot dip galvanized. Hohmann & Barnard, Inc. “359 Weld-On Tie” or “359-FH Weld-On Tie” with “VBT Vee Byna Tie” or “301W Column Web Tie”, or equal.

B. Corrugated Wall Ties - 7/8-inch wide by 22-gauge, hot dip galvanized steel. Hohmann & Barnard “CWT-Corrugated Wall Tie”, or equal.

C. Corrugated Wall Ties - 7/8-inch wide by 22-gauge, mill-galvanized steel. Hohmann & Barnard “CWT-Corrugated Wall Tie,” or equal.

D. Rigid Straps - 1-1/2-inch-wide by 1/4-inch thick by 2 feet-0-inch-long, ASTM A36 steel bar formed in Z shape with 2-inch legs. Hohmann & Barnard, Inc., “No. 344 - Rigid Partition Anchor”, or equal.

2.10 ACCESSORIES

A. Weepholes shall be 3/8-inch OD by 4-inch long medium density polyethylene, white or clear in color, with two cotton wicks per weephole. Hohmann & Barnard, Inc. Model No. 341, or equal.

B. Brickvent - Injection molded PVC vent. Williams Products, Inc. “Williams Goodco Brick Vent”. Hohmann & Barnard “343 Louvered Weep Holes”, or equal.

C. Hardware cloth shall be corrosion proof, biologically inert, and shall not reduce bond in mortar joint. Hohmann & Barnard “MGS-Mortar/Grout Screen”, or equal.

D. Pan-wall flashing for single wythe exterior walls (APMU, AMU, CPMU and CMU), 8 inches and larger, shall be “Blok-Flash” or equal, a one-piece, embeddable, high-density polyethylene molded flashing pan with perimeter flanges and a concaved weep spout extending out from the base pan as manufactured by “Mortar Net” or equal. Flashing pan units shall be installed with bridge units, bug guards, and mesh mortar net mattes per manufacturer’s instructions.

E. Insulation retainer shall be Blok-Lok “Wedge-Lok”, CTP “Insulation Retainer Plate”, or equal.

F. Mortar dropping control device shall be used in all cavity wall construction. Mortar dropping control device shall be manufactured from an inert open weave plastic mesh, MortarNet Solutions “Mortar Net, Hohmann & Barnard, Inc. “Mortar Trap”, or equal.

2.11 MASONRY CLEANERS

A. Solution of 2 cup dry measure tetrasodium polyphosphate and two cup dry measure laundry detergent dissolved in one gallon of water.

PART 3 EXECUTION

3.01 COORDINATION

A. Cold weather construction requirements apply when ambient temperature is below 40 degrees F or temperature of masonry units is below 40 degrees F.

B. Hot weather construction requirements apply when ambient air temperature exceeds 100 degrees F, or ambient temperature exceeds 90 degrees F and wind velocity exceeds 8 mph.

C. Prior to beginning masonry work, Contractor shall inspect and verify that foundations are constructed within specified tolerances. Contractor shall notify the Engineer when such inspections are scheduled.

D. Contractor shall notify Engineer when foundations are not suitable for masonry construction.

E. The Contractor shall attend to walling-inch at their proper position all steel beams, steel columns, bar joists, lintels, openings, window and door frames, anchors, anchor bolts, cutout boxes, electric conduits, downspouts, pipe sleeves, and all similar Work, and shall form all flues, ventilating shafts, leader shafts, recesses, and openings in the walls for the complete performance of the other Work of the Contract.

3.02 PERFORMANCE REQUIREMENTS

A. Masonry shall be constructed within following tolerances (measured in inches) from dimensions shown:

1. Dimension of Elements:

a.	In cross section or elevation	-1/4, +1/2
b.	Mortar joint thickness	+ 1/8
c.	Grout space and cavity width	-1/4, +3/8

2. Elements:

a.	Variation from level	+ 1/4 in 10-feet
		+ 1/2 maximum
b.	Variation from plumb	+ 1/4 in 10-feet
	and true to a line	+ 3/8 in 20-feet
		+ 1/2 maximum

3. Location of Elements:

a.	Indicated in plan	+ 1/2 in 20-feet
		+ 3/4 maximum
b.	Indicated in elevation	+ 1/4 in story height
		+ 3/4 maximum

4. Placing of Reinforcement:

a.	Location relative to face of masonry	+ 1/2
b.	Location along length of wall	+ 2

B. Regardless of specified tolerances, no portion of a structure shall extend beyond legal boundary of project.

3.03 PREPARATION

A. Laitance, loose aggregate, dirt, and other substances deleterious to bond shall be removed from foundation prior to laying masonry.

B. Concrete masonry shall not be wetted before laying.

C. Clay masonry having initial absorption rate exceeding one gram per minute, per square inch, when measured in accordance with ASTM C67 shall be wetted sufficiently to reduce absorption prior to use. Wetted units shall be laid when surface is dry. Allow units to absorb the water so they are damp but not wet at the time of laying.

D. The coursing of brick work must be predetermined to ensure the location of sills, lintels, etc., at their proper elevation without the use of any half courses or brick pinners. Interior masonry shall be laid to minimize the need for units of less than half a unit at masonry openings. Any adjustments in location of vertical joints shall be made at inside corners.

E. Opening frames and hollow metal door frames shall be installed square and plumb and without distortions. Frames shall be rigidly anchored to masonry. Space between masonry and steel frames shall be filled with mortar as units are laid.

F. All aluminum materials inserted in masonry shall have the contact surface coated with mastic or coal tar paint.

G. When new masonry is specified to match existing, this is to mean color, texture, size, grade, and type specifications. Laying new units to match existing includes laying units in running bond, window sills, soldier courses, and other feature courses as required.

H. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining construction. Use full-size units without cutting, where possible. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is required. Install cut units with cut surfaces and edges concealed where possible.

I. Mix units for exposed unit masonry from several pallets or cubes as they are placed to produce uniform blend of colors and textures.

3.04 LAYING UNITS

A. Placing Units:

1. Build cavity and composite walls and other masonry construction to the full thickness shown on the Drawings. Build single-wythe walls to the actual thickness of the masonry units, using units of thickness shown on the Drawings.

2. Units shall be laid in a full bed of mortar.

3. Unless shown otherwise, construct masonry in 1/2 running bond. (Vertical joints in each course centered on units in courses above and below).

4. Courses shall be carried up level with no section of wall extended more than three feet above an adjacent section. When specifically permitted or required, in certain locations, courses shall be stepped as directed.

5. Place units such that exposed faces or edges of masonry are unaltered manufactured surfaces. Cores, cells, and frogs shall not be exposed to view.

6. Units shall be placed while mortar is soft and plastic. Units disturbed to extent that initial bond is broken after initial positioning, shall be removed and relaid in fresh mortar.

7. Contaminated or damaged units shall not be used.

8. Fill cores in hollow concrete masonry units under bearing plates, beams, lintels, posts, and similar items. Unless shown otherwise, grout shall extend a minimum 24-inch deep and 24-inch on each side of the bearing plates.

9. Build non-load-bearing interior partition walls full height of story, unless shown otherwise, to underside of solid floor or roof structure above and install compressible filler in joints between top of wall and underside of structure.

B. Bed and Head Joints:

1. Unless specified otherwise bed and head joints shall be 3/8-inch thick except at foundation. Bed joint of starting course shall be not less than 1/4-inch and not more than 3/4-inch thick.

2. Structural glazed facing tile shall be constructed with 1/4-inch bed and head joints.

3. Line pin holes shall be filled.

4. Joints shall be tooled with round jointer when mortar is thumbprint hard.

5. Mortar protrusions extending 1/2-inch or more into cavity of cavity wall construction or into cells or cavities to be grouted shall be removed.

C. Collar joints less than 3/4-inch wide shall be filled with mortar as Work progresses.

D. Hollow Units:

1. Face shells of bed joints shall be fully mortared.

2. Webs shall be fully mortared in piers, columns, and pilasters. Webs shall be fully mortared in starting course on foundation and where adjacent cells or cavities are to be grouted.

3. Head joints shall be mortared minimum distance from each face equal to face shell thickness.

4. Vertical cells shall be aligned.

5. Maintain joint width of 3/8-inch, except for minor variations required to maintain bond alignment.

E. Solid Units:

1. Bed and head joints shall be solidly filled. Bed joints shall not be furrowed.

2. Head joints shall not be filled by slushing with mortar.

3. Head joints shall be constructed by shoving mortar tight against adjoining unit. Closure units shall be rocked into place pushing mortar against adjacent units.

F. In glazed tile walls, all outside corners, joints, and lintels shall be square unless noted otherwise on the Drawings. Sills shall be bullnosed. Glazed tile walls shall be provided with a structural glazed tile coved wall base unless noted otherwise on the Drawings.

3.05 EMBEDDED ITEMS

A. Embedded items and accessories shall be installed and secured as units are laid. Embedded items shall be installed as shown.

B. Chases shall be constructed as units are laid.

C. Pipes and conduits passing through masonry shall be installed in sleeves as shown. Embedded aluminum conduits, pipes, and accessories shall be heavily coated with mastic or coal tar paint.

D. Pan-Wall Flashing:

1. Wall flashing pan units shall be installed at base of single wythe walls (CMU & AMU) and above all windows, doors, and louvers, in accordance with manufacturer's instructions. Flashing over openings shall extend to the ends of lintel.

2. Pan units shall be installed over block cells on a fresh full mortar bed with bridging units between them. Mesh mortar nets shall be placed above the pan units to disrupt mortar dropping blockage. Pan units shall not be installed where cells are vertically reinforced.

3. Where pan units sit on hardened concrete two rows of sealant shall be placed between the concrete and the pan. One row of sealant shall be placed at the bock exterior face and one at the block interior face.

E. Weepholes and Brickvents:

1. Install weepholes in the head joints in exterior wythes of the first course of masonry immediately above all through-wall flashing. Mortar droppings and debris shall be prevented from blocking weephole.

2. Unless shown otherwise on the Drawings, weepholes shall be installed at 16-inch on center above wall openings in cavity walls. Trim weephole material flush with outside face of wall.

3. Install brickvents in place of weepholes in walls where noted on the Drawings or Specified. Brickvents shall be installed in headjoints near top of wall, just below large openings, and in the first course of masonry immediately above through-wall flashing. Unless otherwise shown on the Drawings, horizontal brickvent spacing shall be 24-inch center to center.

F. Embedded anchor bolts shall be accurately placed, secured against displacement, and grouted in place.

G. Anchors, ties, and rigid straps shall be installed as shown or specified. Ends of anchors and ties shall be embedded in mortar joints. Ties and anchors shall be embedded minimum of 1/2-inch into outer face shell of hollow units and 1-1/2-inch into bed joint of solid masonry unit or solid grouted hollow unit. Anchors, ties, and rigid straps shall not be field bent.

H. Premolded joint materials shall be installed as soon as units are laid. Mortar droppings and debris shall be prevented from entering joints.

I. Wood nailers shall be installed and secured in locations shown or as otherwise required.

J. Lintels shall be of the type and size indicated on the Drawings or as required, and shall be acceptable to the Engineer. Lintels shall extend at least 4-inch beyond each side of the opening unless otherwise indicated on the Drawings.

K. Unless otherwise detailed on the Drawings, structural steel shall be isolated from masonry walls by minimum 3/8-inch thick isolation gasket.

L. Where masonry walls abut, or cover concrete columns, walls, or other concrete construction, the masonry shall be anchored to the concrete by means of dovetail anchor slots cast in the concrete and dovetail anchors. Anchor slots shall be installed at a minimum horizontal spacing of 24-inch center to center. Dovetail anchors shall be installed at a minimum vertical spacing of 16-inch center to center. Vertical cells of hollow masonry units at each anchor shall be filled with mortar.

M. Insulation retainers shall be installed in cavity walls receiving rigid insulation. The retainers shall hold the rigid board insulation tight against interior wythe. The retainers shall be installed at all horizontal insulation joints on each cross wire.

N. Mortar dropping control device shall be placed in the cavity between multi-wythe walls in the bed joints at approximately 16-inch and 32-inch above through wall flashing. The devices shall be placed at a horizontal spacing of 12-inch center to center alternating between the 16-inch and 32-inch bed joints as recommended by the manufacturer.

O. Anchors shall be installed to tie new masonry veneer to existing masonry or concrete. The anchors shall be installed at a maximum horizontal spacing of 24-inch center to center and a maximum vertical spacing of 16-inch center to center. Anchors shall be embedded a minimum of 2-inch and maintain at least 5/8-inch mortar cover. Vertical cells of hollow masonry units at each anchor shall be filled with mortar.

3.06 PROTECTION

A. Design, provide, and install bracing according to the guidelines in the “Standard Practice for Bracing Masonry Walls Under Construction” by the Council for Masonry Wall Bracing, 1999.

3.07 BAR REINFORCEMENT

A. Reinforcement shall be cleaned of mud, oil, and other materials which adversely affect bond. Reinforcement with rust, mill scale, or combination of both shall be considered satisfactory provided minimum dimensions, weight, and height of deformations of hand-wire-brushed test specimen are not less than applicable ASTM specification requirements.

B. Reinforcement shall be accurately placed as shown on approved Shop Drawings and secured against displacements before grouting. Wire bar positioners shall be used to position and secure reinforcement.

C. When it is necessary to move reinforcement to avoid interference with other reinforcement, conduits, or embedded items, the resulting arrangement of bars shall be subject to Engineer’s approval.

D. Unless shown otherwise on the Drawings, clear distance between reinforcing bars and masonry surface shall not be less than 1/2-inch.

E. Bar reinforcement shall be lapped a minimum of 48 bar diameters unless shown otherwise.

F. Field bending or straightening of reinforcement is prohibited except as specifically shown.

3.08 JOINT REINFORCEMENT

A. Joint reinforcement shall be placed so that longitudinal wires are embedded in mortar with 5/8-inch minimum cover.

B. Joint reinforcement shall be lapped in a minimum of 12-inch.

C. Block walls shall have ladder type reinforcement. Multi-wythe walls or walls with mortar-filled collar joints shall have truss type reinforcement. Unless otherwise shown on the drawings, reinforcement shall be placed in horizontal joints at 16-inch center to center vertically. An additional joint shall be reinforced above and below openings, and shall extend at least 2-feet. Beyond the edges of the openings.

D. Veneer masonry shall be horizontally reinforced in joints at 16 inches on center and shall be tied to backup support wall at 24-inch on center horizontally.

E. Intersecting masonry walls shall be tied together with factory fabricated wire reinforcing tees unless shown otherwise. Reinforcing tees shall be installed in same horizontal joints as other common wall wire reinforcing.

3.09 CONTROL JOINTS AND EXPANSION JOINTS

A. Vertical masonry control and expansion joints shall be spaced at 20-feet maximum on center, unless shown otherwise on the Drawings. The joint spacing shall include the distance measured around building corners to the next joint.

3.10 INSTALLATION OF REINFORCED UNIT MASONRY

A. Temporary Formwork and Shores – Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to conform to shape, line, and dimensions shown. Make sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.

2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.

B. Grouting:

1. Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure. Grout spaces shall be free of mortar

droppings, debris, loose aggregate, and other materials deleterious to masonry grout.

2. A grout pour is defined as the height of masonry to be grouted before additional height of masonry can be added. A grout pour can consist of one or several grout lifts.

3. Cleanouts:

   a. Provide cleanouts in bottom course of masonry for each grout pour when the grout pour exceeds 5-feet in height. Cleanouts shall be constructed at each vertical bar. In solid grouted masonry, cleanouts shall be spaced at 32-inch maximum centers.

   b. Cleanouts shall have opening of sufficient size to permit removal of debris. Minimum opening dimension shall be 3-inch.

   c. After cleaning, cleanouts shall be closed and closures shall be braced against grout pressure.

4. Grout shall be placed within 1-1/2 hours after water is introduced to mixture and prior to initial set.

5. Grout shall be confined to areas shown. Hardware cloth shall be used to prevent grout from flowing into areas not intended to be grouted.

6. Contractor shall provide fine or coarse grout as required to meet the required pour height per the following table.

7. Maximum grout pour height and grout space dimension shall be as follows:

Grout Type	Maximum Grout Pour Height (ft.)	Minimum Width of Grout Space (in.)	Minimum Grout Space Dimensions for Grouting Cells of Hollow Units, (in. x in.)
Fine	1	3/4	1-1/2 x 2
	5	2	2 x 3
	12	2-1/2	2-1/2 x 3
Coarse	1	1-1/2	1-1/2 x 3
	5	2	2-1/2 x 3
	12	2-1/2	3 x 3

8. Grout lifts shall not exceed five feet unless masonry to be grouted has cured for at least 4 hours.

9. Grout lifts shall not exceed the maximum pour height. When intermediate bond beams are present grout lifts shall not exceed the distance between bond beam and floor, the distance between adjacent bond beams or the maximum gout pour height, whichever is smaller.

10. Grout shall be consolidated by mechanical vibration as it is placed. Grout pours exceeding 1-feet in height shall be reconsolidated by mechanical vibration after initial water loss and settlement have occurred.

3.11 CURING

A. Moist curing methods similar to those used in concrete construction shall be used to prevent premature masonry dryouts. Periodic wetting of the finished masonry with a fine water spray shall be used to ensure that adequate moisture is available for curing, strength development, and good bond. The Contractor may use alternate methods of curing, subject to the approval of Engineer, such as covering the walls with polyethylene sheets to create a greenhouse effect to aid in moist curing.

3.12 COLD-WEATHER CONSTRUCTION

A. Implement the following requirements when the ambient temperature falls below 40 degrees F or the temperature of masonry units is below 40 degrees F.

1. Preparation:

   a. Remove visible ice and snow form the surface of existing foundations and masonry to receive new construction. Heat these surfaces above freezing.

   b. Remove visible ice and snow from units before unit is laid. Units having temperature below 32 degrees F shall not be used. Units which ordinarily require wetting shall be sprinkled with warm of hot water immediately prior to laying.

2. Construction:

   a. When ambient temperature is between 40 degrees F and 32 degrees F, mortar sand or mixing water shall be heated to produce mortar temperatures between 40 degrees F and 120 degrees F at time of mixing. Mortar temperature shall be maintained above 40 degrees F. Grout materials need not be heated provided they are above 32 degrees F.

   b. When ambient temperature is between 32 degrees F and 25 degrees F, mortar shall comply with the previous requirements. Heat grout aggregates and mixing water to produce grout temperature between 70 degrees F and 120 degrees F at time of mixing. Grout temperature shall be above 70 degrees F at time of placement.

   c. When ambient temperature is between 25 degrees F and 20 degrees F, mortar and grout shall comply with the previous requirements and the following. Heat masonry surfaces under construction to 40 degrees F. Use wind breaks if the wind speed exceeds 15 mph. Heat masonry to 40 degrees F minimum prior to grouting.

   d. When ambient temperature is below 20 degrees F, mortar and grout shall comply with the previous requirements and the following. Provide an enclosure and maintain air temperature in the enclosure above 32 degrees F.

3. Protection – Protection is to be based on the anticipated minimum daily temperature.

   a. When the minimum daily temperature is between 40 degrees F and 25 degrees F complete masonry shall be protected by covering with weather resistive membrane for 24 hours after construction.

   b. When the minimum daily temperature is between 25 degrees F and 20 degrees F, completed masonry shall be protected with weather resistive insulating blankets, or equal protection, for 24 hours after construction. The protection period shall be 48 hours for grouted masonry.

   c. When the minimum daily temperature is below 20 degrees F, completed masonry temperature shall be maintained above 32 degrees F for at least 24 hours by using heated enclosures. The protection period shall be 48 hours for grouted masonry.

3.13 HOT WEATHER CONSTRUCTION

A. High temperature, low humidity, and wind adversely affect performance of the masonry. When ambient temperature is above 100 degrees F or above 90 degrees F with wind velocities greater than 8 mph, protection measures shall be taken to assure continue hydration, strength, and maximum bond.

   1. Mortar beds shall not be spread more than four feet ahead of masonry units.

   2. Units shall be laid within one minute of spreading mortar.

   3. Flush mixer, mortar board, etc. with cool water before they come in contact with mortar or mortar ingredients.

   4. Temperature of mortar and grout shall be below 120 degrees F.

   5. Mortar shall be used within 1-1/2 hours after initial mixing.

   6. When wind speed exceeds 10 mph, wind breaks shall be installed.

   7. Install sunshade or schedule Work during cooler parts of the day.

   8. Materials shall be stored in a shaded location and aggregate stockpiles shall be covered with plastic sheets to retard moisture evaporation.

3.14 TESTING/FIELD QUALITY CONTROL

A. All inspection shall be conducted to verify through visual inspection or by testing that the construction and material meet the requirement of the specifications herein and the Contract Drawings. The Contractor shall engage and pay for the services of an independent testing agency per Section 01410, to perform the following testing for field quality control. Retesting of materials failing to meet specified requirements shall also be done at Contractor's expense.

   1. At the start of work, the independent laboratory at the Site of the project shall:

a. Verify that the grout slump is between 8 inches to 11 inches per ASTM C143.

b. Verify grout mix materials and proportions comply with ASTM C476.

c. Verify mortar mix materials and proportions comply with ASTM C270.

d. Test clay masonry units per ASTM C62, ASTM C216 and ASTM 652 to verify that compressions strengths.

e. Test concrete masonry units per ASTM C55 and ASTM C90 to verify that compressions strengths.

f. Verify that materials are on site to protect masonry from hot, cold, and inclement weather, as applicable.

3.15 PROTECTION

A. During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's Work. Cover partially-completed masonry when construction is not in progress.

1. Extend cover a minimum of 24-inch down both sides and hold cover securely in place.

B. Do not apply any loads for at least three days after building masonry walls.

C. Stain Prevention – Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect floor and base of walls from mortar splatter by coverings spread on the floor and over wall surface.

2. Protect sills, ledges, and projections from mortar droppings.

D. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.

3.16 REPAIRING, POINTING AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or if units do not match adjoining units. Install new units to match adjoining units; install in fresh mortar or grout, pointed to eliminate evidence of replacement.

B. Pointing – During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point-up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for application of sealants.

C. In-Progress Cleaning – Clean unit masonry as Work progresses by dry brushing to remove mortar fins and smears prior to tooling joints.

D. Final Cleaning – After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Owner's approval of sample cleaning before proceeding with cleaning of masonry.

3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.

4. Wet wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clear water.

5. Clean brick by bucket and brush hand-cleaning method described in BIA Technical Note No. 20 Revised, using the following masonry cleaner:

a. Job-mixed detergent solution.

6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2 applicable to type of stain present on exposed surfaces.

3.17 PENETRATIONS

A. All penetrations through masonry walls from any element that interrupts the integrity of the masonry wall, whether in part or in whole, shall be sealed such that it's structural integrity and weatherproof performance and longevity equals or exceeds that of the masonry wall system itself.

3.18 MASONRY WASTE DISPOSAL

A. Recycling – Undamaged, excess masonry materials are Contractor's property and shall be removed from the Site for his use.

B. Excess Masonry Waste – Remove excess, clean masonry waste that cannot be recycled and legally disposed of off Owner's property.

PART 4 SPECIAL PROVISIONS

4.01 MASONRY COLOR

A. The following areas shall have integral color added to CPMU, CMU, APMU, AMU, mortar:

1. Grit Building.

END OF SECTION

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DOOR SCHEDULE

TAG / ID	QNTY.	DOOR WIDTH	DOOR HEIGHT	THICKNESS	DOOR TYPE	DESCRIPTION	DOOR MATERIAL	DETAILS HEAD	DETAILS JAMB	DETAILS THRESH	FRAME MATERIAL	UL LABLE	REMARKS
PUMP STATION													
D1-1	1	9' - 0"	8' - 0"	0"	RO	ROLL-UP DOOR	PER SPEC.	H4	J4	---	PER SPEC.	PER SPEC.	
GRIT BUILDING													
D3-1	1	14' - 0"	12' - 0"	2"	RO	ROLL-UP DOOR	PER SPEC.	H3	J3	T3	PER SPEC.	N/A	
D3-2	1	3' - 0"	7' - 2"	1 3/4"	HL	SINGLE LEAF DOOR	ALUMINUM	H1	J1	T1	ALUMINUM	N/A	
D3-3	1	3' - 0"	7' - 2"	1 3/4"	HL	SINGLE LEAF DOOR	ALUMINUM	H1	J1	T1	ALUMINUM	N/A	
D3-4	1	3' - 0"	7' - 2"	1 3/4"	HL	SINGLE LEAF DOOR	ALUMINUM	H2	J2	T1	ALUMINUM	N/A	

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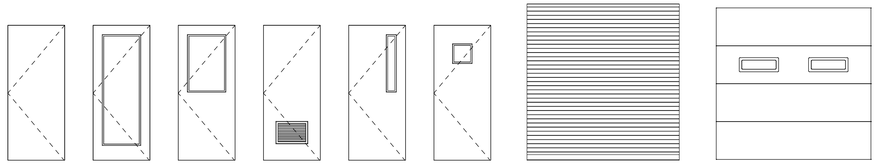


F FL HL L NL VL RO SO

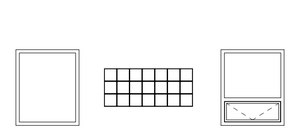
DOOR TYPES

1/4" = 1'-0"

* NOT ALL DOOR TYPES USED

WINDOW SCHEDULE

TAG / ID	QNTY	WINDOW WIDTH	WINDOW HEIGHT	DETAILS TYPE	DESCRIPTION	SILL HEIGHT	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	FRAME MATERIAL	REMARKS
GRIT BUILDING											
W3-1	7	4' - 8"	2' - 0"	GB	GLASS BLOCK WINDOW UNIT	8' - 8"	WH1	WJ1	WS1	PER SPEC.	
W3-2	1	4' - 8"	4' - 0"	F	FIXED WINDOW	3' - 0"	WH2	WJ2	WS2	PER SPEC.	



F GB HF

WINDOW TYPES

1/4" = 1'-0"

* NOT ALL WINDOW TYPES USED

FLOOR DOOR SCHEDULE

TAG / ID	QNTY	SIZE WIDTH	SIZE LENGTH	DESCRIPTION	FUNCTION	REMARKS
PUMP STATION						
FD1-1	1	4' - 0"	4' - 0"	4x4	EXTERIOR	INFLUENT JUNCTION CHAMBER

NOTE:
SCHEDULES ARE NOT GUARANTEED TO BE COMPLETE. ALL ITEMS SHOWN ON THE DRAWINGS OR SPECIFIED SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR WHETHER OR NOT LISTED IN THE FOLLOWING SCHEDULE.

STATE OF OHIO
DEVYANI R. CHARLES
E-66973
REGISTERED
PROFESSIONAL ENGINEER
9/26/2022

GENERAL ARCHITECTURAL SCHEDULES AND DETAILS

CITY OF BELLEVUE, OHIO
WWTP SOLIDS AND GRIT REMOVAL IMPROVEMENTS

NO.	DATE	REVISIONS AFTER ISSUED FOR BID	BY
1	11/29/22	ADDENDUM 1	DMY

Jones & Henry Engineers, Ltd.
Fluid thinking®...
www.JHeng.com

JOB NO.: 563-7827.001
SCALE: 1/4" = 1'-0"
THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

DESIGNED	DRAWN	CHECKED
JDN	CAL	PAL

STATUS: ISSUED FOR BID
DATE: SEPTEMBER 2022
SHEET NO.
A-0.1
21 OF 76

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